

REMARKS

Claims 1-14 are now pending in the pending in the application. Claim 9 had been rejected under 35 USC § 112, second paragraph as failing to set forth the subject matter which applicant regards as his invention.

Claims 1-13 had been rejected under 35 USC § 103(a) as being unpatentable over Bruce et U.S. patent 4,176,052 in view of Benson U.S. patent 5,099,124. In particular claims 5,7, and 8 were rejected for not further limiting the claim from which they depend.

Applicant respectfully traverses the rejection.

THE 35 USC § 112 SECOND PARAGRAPH REJECTION OF CLAIM 9

Claim 9 has been rejected under 35 USC § 112 second paragraph as failing to set forth the subject matter which applicant regard as his invention. The examiner's reason for such rejection is that the claim does not delineate the operational steps necessary to account for the changing density of the foam. Applicant respectfully traverses the rejection. Claim 9, being very short, is set out below in its entirety:

9. A method of detecting a foam level in a delayed coking drum comprising detecting the boiling mass in the coke drum and accounting for the changing densities of the foam in the drum over the height of the coke drum.

There are two steps to the claimed method. (1) Detecting the boiling mass and (2) accounting for the changing density. That succinctly and clearly points out the invention. The subject matter there set out must be presumed, in the absence of evidence to the contrary, to be that which the applicant regards as his invention." *In re*

Moore, 169 USPQ 236,238(CCPA 1971); *In re Angstadt, et al.*, 190 USPQ 214,(CCPA 1976). It should be clear from the specification that no one has yet recognized that the problem is the changing density of the foam in a coke drum. Everyone assumes that there is a solid level of coke rising in the drum. Neither of the cited references notes this problem and therefore cannot be said to be able to perform the method. The problem is only recognized and presented in applicant's specification.

The examiner is confusing the second paragraph with enablement. The claim recognizes that other steps may be used, hence the open wording "comprising". There is no requirement that a claim be enabling, only that it be enabled. How the changing density is accounted for is clearly outlined in the specification – by recalibrating each detection tube based upon the readings of the lower tubes. The 35 USC § 112 second paragraph rejection must fail.

Claims 1-13 have been rejected under 35 USC § 103 (a) as being obvious over US patent 4,176,052 (Bruce, et al) and US patent 5,099,124 (Benson).

The rejection of each of the claims will be discussed.

CLAIM 1

The examiner starts out with the proposition that Bruce *et al* teach a level system for detecting a foam level in a coke drum. This is not true. Bruce *et al* teach a level system for detecting a **coke** level in a coke drum. At column 3 lines 9-14 the reference reads : "The coking drum continues to fill with **coke**. Eventually, when the **coke** reaches the preestablished level in the drum, a radioactive source provides an indication that this level has been reached..." (emphasis ours). At column 8 lines 31-46

the **coke** level is specifically again addressed. This may seem picayune but it goes to the heart of the invention as noted above. Bruce *et al* start on the assumption that the level is a solid coke level as opposed to the boiling bubbling mass proposed by applicant so does not look to solve the same problem as applicant.

The examiner acknowledges Bruce does not teach a plurality of linear detectors along the height of the drum. The examiner then cites Benson for use of a plurality of linear detectors. He suggests that Benson discloses at column 6, lines 9-36 that the detectors may be placed opposite the radiation source. The claim requires the radiation source be mounted on the coke drum opposite the detectors. "Opposite" in the meaning of the claim is exactly as defined by *Merriam Webster's Collegiate Dictionary 10th Edition* the first definition: 1 a :set over against something that is at the other end or side of an intervening line or space... b: situated in pairs on an axis with each member being separated from the other by half the circumference of the axis. This in layman's terms means that the source and detectors are directly across the coke drum from each other – at 180°. In addition the claim has been amended to clearly claim this configuration. Clearly Benson does not suggest this. The device is a back scatter device and the source must be near to and parallel to the detector. See column 6 line 23-24 which reads "Whatever the relative relationship of the source tube and detector tube, they should be in substantially parallel relationship to one another, and in the preferred case will be generally vertically disposed".

The examiner further states that the benefits of using multiple linear detectors for the measurement of the liquid levels is discussed by Benson. However, Benson

acknowledges that the plurality of detector tubes act as a single detector tube. See column 5 lines 14-19 which reads "It will be appreciated that when all of the detector tubes 22a-2e are operational, and the outputs are being summed by the electronic console 26a, the stacked array of detector tubes functions essentially as a single detector,...". The accuracy of Benson only arises when only one tube is active and the rest are turned off. See column 5 lines 57-64.

Finally claim 1 requires that the detectors be calibrated to read 100 per cent when no radiation is detected. The examiner states that the linear radiation detectors of Benson are capable of being calibrated to read as claimed. This is simply his opinion. There is no evidence in the references that the detectors may be so calibrated. The examiner may not make out a *prima facie* without facts to back up his opinion. The mere fact that the prior art may be modified to produce the claimed invention does not make modifications obvious, unless the prior art suggests the desirability of the modification. *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992). There is no incentive given in either of the cited references to calibrate the detectors as claimed. Silence in a reference is not a proper substitute for an adequate disclosure of facts. *In re Burt*, 148 USPQ 548 (CCPA 1966).

Claim 1 is therefore not obvious over the cited references.

CLAIM 2

Claim 2 requires that the linear radiation detectors be spaced apart a nominal distance. The examiner asserts that Benson discloses this. Neither FIG 1 nor FIG 2 disclose this. Rather clearly each of the detectors 22 touch each other. The claimed

nominal distance is defined by the instant specification as a few inches to a foot at page 12 lines 8-9. Clearly there is no space in FIG 1 or FIG 2 of Benson. Claim 2 cannot be obvious over a combination of references when neither reference discloses the limitation.

CLAIM 3

Claim 3 depends from claim 1 and requires that the linear detectors be end to end.

This is disclosed by Benson, but the claim depends from claim 1 and includes all of the limitations of that claim. For that reason it is allowable.

CLAIM 4

Again the examiner starts out with an erroneous statement. The Bruce *et al* system and method are for measuring the level of a solid, the coke, in the drum, not the foam. The above arguments with regard to claim 1 are incorporated herein.

The examiner specifically acknowledges that neither Bruce *et al* nor Benson teach the claimed calibration. The claimed method requires that the detectors be calibrated to 100 per cent when no radiation is detected. The method of Benson does just the opposite. Benson is a "backscatter" device which measures the amount of radiation reflected back into the detector. The more "backscatter" the higher the level. There is no calibration mentioned at all in Benson. Benson simply states that the amount of "backscatter" can be linearly correlated with the level. It is implied, but only implied, that the level would be 100 per cent at the highest radiation level. The examiner then proceeds to compare applicant's method to Benson's as the same as

classifying a glass as half full or half full. He then dismisses applicant's calibration method as an obvious matter of routine engineering design choice. The Examiner has failed to make out a *prima facie* case of obviousness because he has used a legal conclusion as evidence. Inventions are obvious over references and the Examiner has not cited **any** reference to support his legal conclusion of "obvious matter of design choice." (See In re Bezombes, 164 USPQ 387, 391 (CCPA 1970).

CLAIM 5, 7, and 8

This was a typographical error and the claims now depend from claim 4. The examiner has not directly applied the art to these claims and they thus must be allowable.

CLAIM 6

Claim 6 requires that each detector be recalibrated in a certain way. The examine's rejection simply recites the claim gives no reasoning why the combined references make the claim obvious. Therefore applicant cannot determine how the art has been applied. However, the claim must be allowable because neither reference discloses any method of calibration or recalibration. This is the novel and unobvious method of accounting for the difference in density as the level rises in the drum.

CLAIM 9

While claims 1-13 are mentioned in the rejection the art has not been applied to claim 9. This probably because that neither of the references mention accounting for the changing density in the coke drum. Applicant must again point out that no one heretofore has recognized that the coke in a coke drum is not a solid. Everyone has

gone on the assumption that the coke level is a solid at the conditions in the drum. Thus no one has thought it necessary to account for the changing density. Since no one has even thought about this it cannot be obvious.

CLAIMS 10-13

The claims require that the detectors in the system of claim 3 be recalibrated in a certain manner. The examiner's comments are that the radiation is capable of being recalibrated in the way claimed. Applicant assumes that the radiation detectors in the comments are those of Benson, otherwise the rejections would make no sense. However, as noted above there is no evidence of record that the detectors of Benson can be calibrated in the claimed manner. This is only the examiner's opinion. If he is relying upon his own personal knowledge, then he must provide an affidavit to such effect. Further, even if the detectors of Benson are capable of being calibrated in the claimed manner, they clearly are not. The claimed detectors are "calibrated" and any not calibrated in the manner claimed would not infringe the claims. This is not an intended use, but rather a positive recitation of a physical condition. Again as noted above simply because the prior art can be modified to produce the claimed invention does not make modifications obvious, unless the prior art suggests the desirability of the modification. *In re Fritch, supra*.

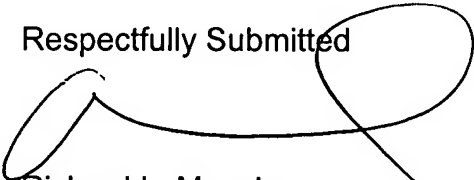
CONCLUSION

The examiner has based his rejection on erroneous construction of the prior art references and opinions about their possible modification. There is no factual basis, either in the cited references or the record for his rejections. Silence is a hard

argument to rebut and negatives are almost impossible to prove. That is the reason that the courts have required more for a *prima facie* case of obviousness than just the examiner's opinion.

Rejections based on §103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner has the initial duty of supplying the factual basis for the rejection. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. Se In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Even if the teachings of Bruce et al and Benson can be combined, there is no factual basis from which to conclude that the system or method resulting from the combined teachings would include the claimed elements of applicant's invention.

Respectfully Submitted



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